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IS 4236 (1999): Glyceryl Monostearate for Cosmetic Industry  
[PCD 19: Cosmetics]

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भारतीय मानक  
सौदर्य प्रसाधन उद्योग के लिये ग्लिसराईल  
मोनोस्टिरियेट – विशिष्टि  
( तीसरा पुनरीक्षण )

*Indian Standard*  
GLYCERYL MONOSTEARATE FOR COSMETIC  
INDUSTRY — SPECIFICATION  
(*Third Revision*)

ICS 71.100.70

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BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

## FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Cosmetics Sectional Committee had been approved by the Petroleum, Coal and Related Products Division Council.

This standard was originally published in 1967 and subsequently revised in 1977 where the essential and optional requirements were given separately. In the second revision, no discrimination was made between the essential and optional requirements as this was found to be non-implementable for certification and hence only a single set of requirements were stipulated.

In the present version (Third Revision) based on the availability of glyceryl monostearate, the Committee had agreed to include two types of glyceryl monostearate, namely, self emulsifying and non-self emulsifying. Therefore, the requirements of solubility, residue on ignition, moisture and saponification value have been modified. Requirements of pH and soap content have been included. Accordingly, methods of tests have also been modified for total volatile matter and iodine value.

Glyceryl monostearate is widely used in cosmetic, pharmaceutical and food industries as a blending, dispersing and stabilizing agent. In the cosmetic industry, it is used in the preparation of hair dyes, shampoos, in cold cream and other creams.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2:1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## *Indian Standard*

# GLYCERYL MONOSTEARATE FOR COSMETIC INDUSTRY — SPECIFICATION

*(Third Revision)*

## 1 SCOPE

This standard prescribes the requirements, and the methods of sampling and test for glyceryl monostearate for cosmetic industry.

## 2 NORMATIVE REFERENCES

The following Indian Standards are necessary adjuncts to this standard. The standard contains provisions which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below :

IS No.	Title
229 : 1993	Specification for ethyl acetate ( <i>third revision</i> )
265 : 1993	Hydrochloric acid ( <i>fourth revision</i> )
323 : 1959	Specification for rectified spirit ( <i>revised</i> )
1070 : 1992	Reagent grade water ( <i>third revision</i> )
1448[P:55] : 1963	Methods of test for petroleum and its products [P:55] Saponification value, saponifiable and unsaponifiable matter
2316 : 1990	Methods of preparation of standard solutions for colorimetric and volumetric analysis ( <i>second revision</i> )
2362 : 1973	Determination of water content by Karl Fischer method ( <i>first revision</i> )

## 3 TYPES

Glyceryl monostearate for cosmetic industry shall be of two types; namely:

- a) Self emulsifying; and
- b) Non-self emulsifying.

## 4 REQUIREMENTS

### 4.1 Description

The material is white to creamish white in colour, available in wax-like solid, powder or granular form, containing not less than the stated percentage of monostearate in respective types with varying amount of distearate and tristearate. It shall have a slight characteristic fatty odour and taste, and shall be free from rancidity.

**4.1.1** The colour of the material shall be as agreed to between the purchaser and the supplier and shall be tested by a mutually agreed method.

### 4.2 Solubility

Dissolve 1.0 g of the material in 10 ml of warm rectified spirit (*see IS 323*). The material shall dissolve with not more than a faint turbidity, if any.

**4.3** The material shall also comply with the requirements given in Table 1 when tested as prescribed in Annex A to H and IS 1448 [P:55].

## 5 PACKING AND MARKING

### 5.1 Packing

The material shall be packed in 25 or 50 kg polyethylene bags then put into high density polyethylene woven outer bags or bituminized gunny jute outer bags lined with polyethylene, or as agreed to between the purchaser and the supplier.

### 5.2 Marking

The containers shall be legibly marked with the following information:

- a) Name of the material;
- b) Manufacturer's name and its recognized trademark, if any;
- c) Net mass of the material;
- d) Batch number or Code number; and
- e) Type.

**Table 1 Requirements for Glyceryl Monostearate for Cosmetic Industry (Clause 4.3 and Annex J)**

Sl No.	Characteristic	Requirement		Method of Test	
		Self Emulsifying	Non - Self Emulsifying	Ref to Annex of This Standard	Ref to IS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Acid value, <i>Max</i>	6.0	6.0	A	—
ii)	Monostearate content, percent by mass. <i>Min</i>	35	40 and above as specified by the buyer	B	—
iii)	Free glycerine, percent by mass ( <i>see Note</i> )	As specified by the buyer	As specified by the buyer	B	—
iv)	Melting range, °C	54-57	54-60	C	—
v)	Iodine value, of separated fatty acid. <i>Max</i>	3.0	3.0	D	—
vi)	Saponification value	155-165	160-175	—	1448 [P:55]
vii)	Sulphated ash, percent by mass	0.4-0.9	<i>Max</i> 0.2	E	—
viii)	Iron (as Fe), ppm, <i>Max</i>	20	20	F	—
ix)	Water content, <i>Max</i>	2.0	2.0		2362
x)	pH of 5 percent dispersion	8.5-10.0	4.0-7.0	G	—
xi)	Soap content	As agreed to between buyer and supplier		H	—

NOTE — A tolerance of  $\pm 3$  percent of the value shall be allowed on the value agreed to between the purchaser and the supplier.

### 5.2.1 BIS Certification Marking

The containers may also be marked with the Standard Mark.

**5.2.1.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

### 6 SAMPLING

Representative test samples of the material shall be drawn as prescribed in Annex J.

### 7 QUALITY OF REAGENTS

Unless specified otherwise, pure chemicals and distilled water (*see IS 1070*) shall be used in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

## ANNEX A

[Table 1, Sl No. (i)]

### DETERMINATION OF ACID VALUE

#### **A-1 OUTLINE OF THE METHOD**

An alcoholic solution of the material is titrated against standard alkali solution.

#### **A-2 REAGENTS**

##### **A-2.1 Rectified Spirit**

(See IS 323) which has been neutralized to phenolphthalein indicator.

##### **A-2.2 Standard Potassium Hydroxide Solution**

Exactly 0.1 N.

##### **A-2.3 Phenolphthalein Indicator**

Dissolve 0.1 g of phenolphthalein in 60 ml of rectified spirit and dilute with water to 100 ml.

#### **A-3 PROCEDURE**

Weigh accurately about 10.0 g of the sample in a tared, 150 ml saponification flask or a 150 ml beaker. Add 50 to 100 ml of rectified spirit and warm on a steam-bath. Add 2 or 3 drops of phenolphthalein indicator solution and titrate with standard potassium hydroxide solution to pink colour that persists for at least 30 s.

#### **A-4 CALCULATION**

$$\text{Acid value} = \frac{5.61 V}{M}$$

where

$V$  = volume in ml of standard potassium hydroxide solution used in titration, and

$M$  = mass in g of the material taken for the test.

## ANNEX B

[Table 1, Sl No.(ii) and (iii)]

### DETERMINATION OF MONOSTEARATE AND FREE GLYCERINE CONTENT

#### **B-1 OUTLINE OF THE METHOD**

Free glycerine is separated by washing an ethylacetate solution of the sample with aqueous sodium sulphate solution. Glyceryl monostearate and glycerine are then determined separately by treatment with excess of periodic acid which is titrated iodometrically.

#### **B-2 REAGENTS**

##### **B-2.1 Ethyl Acetate**

See IS 229.

##### **B-2.2 Sodium Sulphate Solution**

10 percent solution of the decahydrate.

##### **B-2.3 Glacial Acetic Acid**

##### **B-2.4 Concentrated Periodic Acid Reagent**

Dissolve 11.0 g of periodic acid in 200 ml of water and add 800 ml of glacial acetic acid to it.

##### **B-2.5 Potassium Iodide Solution**

25 percent solution (*m/v*).

##### **B-2.6 Standard Sodium Thiosulphate Solution**

Exactly 0.2 N (see IS 2316).

#### **B-2.7 Starch Indicator Solution**

Freshly prepared 1 percent solution in water.

#### **B-3 PROCEDURE**

**B-3.1** Weigh accurately about 0.9 to 1.1 g of the sample into a 100 ml separating funnel. Add 25 ml of ethyl acetate and dissolve the sample by heating the funnel, while well stoppered, on its side on a hot-plate, shaking occasionally to facilitate solution. After the sample is completely dissolved, cool the funnel and contents under tap water to cool the ethyl acetate vapours and to prevent possible loss of solution on opening the separating funnel. Wash the solution three times with 10 ml portions of sodium sulphate solution, carefully separating the lower aqueous-glycerol layer each time. These washings are preserved for the estimation of free glycerine in B-3.3.

**B-3.2** Transfer the ethyl acetate solution into 500 ml iodine flask. Wash the separating funnel twice with 10 ml portions of glacial acetic acid and combine these washings with the ethyl acetate solution in the iodine flask. Wash down the neck of the iodine flask with 5 ml of glacial acetic acid. Add, from a pipette, exactly 50 ml of concentrated periodic acid reagent to the contents of the iodine flask. Stir the flask and contents

on a hot-plate with a rotary motion for 45 to 60s. Usually, the solid fats will be dissolved by this time. Keep the flask for 15 min on the table. Add 20 ml of potassium iodide solution and titrate rapidly with standard sodium thiosulphate solution. Near the end point add a few millilitres of starch solution, wash down the neck of the flask with several millilitres of water and complete the titration with vigorous shaking to pure milky white colour. The end point transition is blue to yellow to white. Carry out a blank containing 25 ml of ethyl acetate and 25 ml of glacial acetic acid and the same volume of periodic acid reagent and potassium iodide solution. Allow the blank to stand for 15 min without heating.

#### NOTES

1 A blank is necessary only every second day when using the same reagents throughout.

2 The mass of the sample taken for the test should be such that the ratio of the volume of sodium thiosulphate solution required with the sample to that required with the blank should be greater than 0.78. If this is not so, the test should be repeated with a smaller mass of the sample.

**B-3.3** Transfer the aqueous glycerine layer preserved in **B-3.1** to a 500 ml iodine flask. Add 50 ml of concentrated periodic acid reagent from a pipette to the contents of the flask. Mix by swirling for several seconds. Allow the contents of the flask to stand for 10

to 15 min at room temperature. Then proceed as in **B-3.2**. Use the same blank as obtained in **B-3.2**.

#### B-4 CALCULATION

a) Monostearate content,

$$\text{percent by mass} = 3.44 \frac{(V_1 - V_2)}{M}$$

b) Free glycerine,

$$\text{percent by mass} = 0.460 \frac{3(V_1 - V_3)}{M}$$

where

$V_1$  = volume in ml of standard sodium thiosulphate solution required for titration of blank,

$V_2$  = volume in ml of standard sodium thiosulphate solution required for titration of sample in **B-3.2**,

$V_3$  = volume in ml of standard sodium thiosulphate solution required for titration in **B-3.3**, and

$M$  = mass in g of the material taken for the test in **B-3.1**.

NOTE — Molecular mass of commercial monostearate varies with the type of stearic acid used in its manufacture. The value 3.44 adopted in the calculation above is a good average figure.

### ANNEX C [Table 1, Sl No.(iv)]

#### DETERMINATION OF MELTING POINT

##### C-1 APPARATUS

###### C-1.1 Melting Point Tubes

Thin-walled, uniform bore, capillary glass-tubes open at both ends and with the following dimensions:

- Length — 50 to 60 mm,
- Inside diameter — 0.8 to 1.1 mm, and
- Outside diameter — 1.2 to 1.5 mm.

###### C-1.2 Thermometer

With 0.2° subdivision and a suitable range. The thermometer should be checked against a standard thermometer which has been calibrated and certified by the National Physical Laboratory, New Delhi, or any other laboratory recognized for such work.

###### C-1.3 Heat Source

Gas burner or electric hot-plate with rheostat control.

##### C-2 PROCEDURE

Melt the sample and filter it through a filter paper to remove any impurities and the last traces of moisture. Make sure that the sample is absolutely dry. Mix the sample thoroughly. Insert a clean melting point tube into the molten product so that a column of the material

about 10 mm long is forced into the tube. Cautiously fuse one end of the tube (where the sample is located) in a small flame, taking care not to burn the sample. Place the tube in a beaker and while the sample is still in the liquid state, transfer to a refrigerator and hold at 4 to 10°C overnight (about 16h). Remove the tube from the refrigerator, and attach with a rubber band or by any other suitable means to the thermometer so that the lower end of the melting point tube is even with the bottom of the bulb of the thermometer. Suspend the thermometer in a large test tube containing water and immerse it in a 600-ml beaker which is about half full of water. The bottom of the thermometer is immersed in the water about 30 mm below the surface. Adjust the starting bath temperature from 8 to 10°C below the melting point of the sample at the beginning of the test. Agitate the water in the large test tube as well as in the beaker with a small stream of air or by other means, and apply heat so as to increase the bath temperature at the rate of about 0.5°C per minute. Heating is continued until the liquid in the tube is completely clear throughout. Observe the temperature at which the liquid becomes clear. Report the average of two such separate determinations as the melting point, provided that the readings do not differ by more than 0.5°C.

**ANNEX D**  
**[Table 1, Sl No. (v)]**

**DETERMINATION OF IODINE VALUE**

**D-1 OUTLINE OF THE METHOD**

The material is treated with a known excess of iodine monochloride solution in glacial acetic acid. The excess of iodine monochloride is determined iodometrically.

**D-2 APPARATUS**

**D-2.1 Thermometer**

An engraved stem thermometer, calibrated between 10° and 65° intervals and with the 0°C point marked on the stem, is recommended. The thermometer shall have an auxiliary reservoir at the upper end, length of about 370 mm and diameter of about 6 mm.

**D-3 REAGENTS**

**D-3.1 Carbon Tetrachloride or Chloroform**

**D-3.2 Starch Solution**

Triturate 5 g of starch and 0.01 g of mercuric iodide with 30 ml of cold water and slowly pour it with stirring into 1 litre of boiling water. Boil for 3 min. Allow the solution to cool and decant off the supernatant clear liquid.

**D-3.3 Standard Thiosulphate Solution**

0.1 N (see IS 2316).

**D-3.4 Iodine Trichloride**

**D-3.5 Wij's Iodine Monochloride Solution**

Prepare this solution by one of the following two methods and store in a glass-stoppered bottle in a cool place, protected from light and sealed with paraffin until taken for use:

- a) Dissolve 13 g of resublimed iodine in one litre of acetic acid, using gentle heat, if necessary, and determine the strength by titration with standard sodium thiosulphate solution. Set aside 50 to 100 ml of the solution and introduce washed and dried chlorine gas into the remainder until the characteristic colour change occurs and the halogen content is nearly doubled as ascertained again by titration. If the halogen content has been more than doubled, reduce it by adding the requisite quantity of the iodine-acetic acid solution.
- b) As an alternative method for preparing Wij's solution, dissolve 8 g of iodine trichloride in approximately 450 ml of acetic acid. Dissolve separately 9 g of iodine in 450 ml of acetic acid,

using heat, if necessary. Add gradually the iodine solution to the iodine trichloride solution until the colour has changed to reddish-brown. Add 50 ml more of iodine solution and dilute the mixture with acetic acid till 10 ml of the mixture is equivalent to 20 ml of standard sodium thiosulphate solution when the halogen content is estimated by titration in the presence of an excess of potassium iodide and water. Heat the solution to 100°C for 20 min and cool. Prevent access of water vapour in preparing the solution.

NOTE — The method prescribed in (a) is preferable to that prescribed in (b) because of the instability of iodine trichloride.

**D-3.6 Glycerine**

**D-3.7 Potassium Hydroxide**

**D-3.8 Sulphuric Acid — 1:1(v/v).**

**D-3.9 Anhydrous Sodium Sulphate**

**D-3.10 Potassium Iodide Solution — 20 percent.**

**D-4 PROCEDURE**

**D-4.1 Separation of Fatty Acid**

In a one litre beaker, warm 100 g glycerine and 30 g potassium hydroxide shaking until alkali has dissolved. Add 30 g of material and heat further for half an hour.

Add about 500 ml boiled water. Cool slightly and add dilute sulphuric acid till fatty acid separates.

Heat again on hot - plate till fatty acid melts and clearly two layers are seen. Take this in a 500 ml separating funnel and remove lower layer of water. Wash with hot water till washings are neutral to methyl orange.

Drain off the water and filter fatty acid in a beaker through anhydrous sodium sulphate, keeping the filtration assembly in oven at  $105 \pm 2^\circ\text{C}$ .

**D-4.2 Determination of Iodine Value of Separated Fatty Acid**

Weigh accurately about 5g of the separated fatty acid in a clean, dry 500-ml glass-stoppered flask. Add 25 ml of carbon tetrachloride, and agitate to dissolve the contents. Add 10 ml of Wij's solution. Replace the glass stopper after wetting with potassium iodide solution, swirl for intimate mixing, and allow to stand in the dark for 30 min. Carry out a blank test

simultaneously under similar experimental conditions.

After standing, add 10 ml of 20 percent potassium iodide solution and 30 ml of water. Titrate the liberated iodine with standard sodium thiosulphate solution, swirling the flask continuously till the colour of the solution is straw yellow. Add 0.5 ml of the starch solution and continue the titration until the blue colour disappears.

#### D-5 CALCULATION

$$\text{Iodine value} = \frac{12.69 (B - S) N}{M}$$

where

$B$  = volume in ml of standard sodium thiosulphate solution required for the blank,

$S$  = volume in ml of standard sodium thiosulphate solution required for the material,

$N$  = normality of standard sodium thiosulphate solution, and

$M$  = mass in g of the fatty acid taken for the test.

### ANNEX E

[Table 1, Sl No. (vii)]

#### DETERMINATION OF SULPHATED ASH

##### E-1 REAGENT

###### E-1.1 Concentrated Sulphuric Acid

##### E-2 PROCEDURE

Weigh accurately about 10 g of the material in a tared crucible. Ignite, gently at first, until the substance is thoroughly charred. Cool and moisten the residue with 1 ml of concentrated sulphuric acid and ignite gently again until the carbon is completely consumed. Conduct the ignition in a place protected from currents. When the carbon has completely disappeared, cool the

crucible in a desiccator and weigh.

#### E-3 CALCULATION

$$\text{Residue on ignition,} = \frac{100 m}{M} \text{ percent by mass}$$

where

$m$  = mass in g of the residue, and

$M$  = mass in g of the material taken for the test.

### ANNEX F

[Table 1, Sl No. (viii)]

#### DETERMINATION OF IRON

##### F-1 OUTLINE OF THE METHOD

The colour produced by the sample with thioglycollic acid is compared against that produced by standard iron solution.

##### F-2 APPARATUS

###### F-2.1 Nessler Cylinders

50 ml capacity.

##### F-3 REAGENTS

###### F-3.1 Anhydrous Sodium Carbonate

###### F-3.2 Concentrated Hydrochloric Acid

(see IS 265).

###### F-3.3 Citric Acid Solution

Prepared by dissolving 20 g of citric acid in 100 ml of water.

###### F-3.4 Thioglycollic Acid

###### F-3.5 Ammonium Hydroxide

10 percent ( $m/m$ ).

###### F-3.6 Standard Iron Solution

Dissolve 0.140 g of ferrous ammonium sulphate in 100 ml of water and 10 ml of dilute sulphuric acid. Make up the volume to one litre. One millilitre of this solution contains 0.02 mg of iron.

##### F-4 PROCEDURE

Ignite 1.0 g of the material in a crucible and fuse the residue with 1 g of anhydrous sodium carbonate. Cool and add 5 ml of concentrated hydrochloric acid. Warm on a water bath, cool again and dilute to 40 ml with water. Transfer the solution to a Nessler cylinder. Add 2 ml of citric acid solution and 2 drops of thioglycollic acid. Mix, make alkaline with ammonium hydroxide, dilute to 50 ml with water and allow to stand for 5 min.

Carry out a control test using 1 ml of standard iron solution, adding the same quantities of the reagents as used with the material. Compare the colour produced in the two Nessler cylinders.

**F-4.1** The material shall be taken to have not exceeded the limit prescribed in Table I if the intensity of colour obtained with the sample is not greater than that produced in the control test.

## ANNEX G

[Table 1, Sl No.(x)]

### DETERMINATION OF pH

#### G-1 APPARATUS

Any suitable pH meter.

#### G-2 PROCEDURE

Weigh 95 g hot distilled water (60°C). Add 5 g of

glyceryl monostearate (self emulsifying/non-self emulsifying) to above water under stirring. Cool and measure pH with the help of suitable pH meter.

NOTE — The above dispersion instantly forms a thick, white, creamy emulsion in the case of self emulsifying grade only.

## ANNEX H

[Table 1, Sl No. (xi)]

### DETERMINATION OF SOAP CONTENT

#### H-1 REAGENTS

##### H-1.1 Bromophenol Blue Solution

Dissolve 0.5 g of bromophenol blue in a mixture of 20 ml ethanol (20 percent) and 80 ml of water, the solvent having been previously neutralized with 0.1 M hydrochloric acid or 0.1 M sodium hydroxide.

##### H-1.2 Acetone

##### H-1.3 Hydrochloric Acid

0.1 M.

#### H-2 PROCEDURE

Weigh accurately about 10 g of the material and add to a mixture of 60 ml of acetone and 0.15 ml of

bromophenol blue. Warm gently on a water-bath until solution is complete and titrate with 0.1 M hydrochloric acid until the blue colour is discharged. Allow to stand for 20 min, warm until any solidified matter has redissolved and, if the blue colour reappears, continue the titration. Each ml of 0.1 M hydrochloric acid is equivalent to 0.030 45 g of  $C_{18}H_{33}NaO_2$ .

#### H-3 CALCULATION

$$\text{Percent by mass, soap content (as sodium stearate)} = \frac{V \times 0.030\ 45 \times M \times 100}{W \times 0.1}$$

where

$V$  = volume of 0.1 M hydrochloric acid,

$M$  = molarity of 0.1 M hydrochloric acid, and

$W$  = weight of sample taken in g.

## ANNEX J

(Clause 6)

### SAMPLING OF GLYCERYL MONOSTEARATE FOR COSMETIC INDUSTRY

#### J-1 GENERAL REQUIREMENTS OF SAMPLING

**J-1.1** In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

**J-1.2** Samples shall be taken in a protected place not exposed to damp air, dust or soot.

**J-1.3** The sampling instrument shall be clean and dry.

**J-1.4** Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument

and the containers for samples from adventitious contamination.

**J-1.5** The samples shall be placed in clean and dry glass containers. The sample containers shall be of such size that they are almost completely filled by the sample.

**J-1.6** Each container shall be sealed airtight after filling and marked with full details of sampling, date of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

**J-1.7** Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

## **J-2 SCALE OF SAMPLING**

### **J-2.1 Lot**

All the containers in a single consignment of the material drawn from a single batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the groups of containers in each batch shall constitute separate lots.

**J-2.2** Samples shall be tested from each lot for ascertaining conformity of the material to the requirements of the specification.

**J-2.3** The number of containers  $n$  to be chosen from the lot shall depend on the size of the lot  $N$  and shall be as given in Table 2.

**J-2.4** The containers to be selected for sampling shall be chosen at random from the lot and for this purpose, random number tables shall be used. In case such tables are not available, the following procedure may be adopted:

Starting from any container, count them as 1, 2, 3.... $r$  and so on in a systematic manner, where  $r$  is the integral part of  $N/n$ . Every  $r$ th container thus counted shall be withdrawn from the lot.

**Table 2 Number of Containers to be Selected for Sampling**  
(*Clauses J-2.3 and J-3.1.1*)

<b>Lot Size</b>	<b>Number of Containers to be Selected</b>
$N$	$n$
Up to 50	3
51 to 150	4
151 to 300	5
301 and above	7

## **J-3 TEST SAMPLES AND REFEREE SAMPLE**

### **J-3.1 Preparation**

**J-3.1.1** Draw with an appropriate instrument a small

portion of the material from different parts of each container selected (see Table 2). The total quantity of the material drawn from each container shall be about 250 g.

**J-3.1.2** Thoroughly mix all portions of the material drawn from the same container. Out of these portions equal quantities shall be taken out from each selected container and shall be well mixed up together so as to form a composite sample weighing not less than 0.5 kg.

**J-3.1.3** The composite sample shall be divided into three equal parts, one for the purchaser, another for the supplier and the third for the referee. These parts shall be transferred to sample containers which shall then be sealed airtight with stoppers and labelled with all the particulars of sampling given under J-1.5.

### **J-3.1.4 Referee Sample**

The referee sample, bearing the seals of the purchaser and the supplier shall be used in case of a dispute between the purchaser and the supplier. It shall be kept at a place agreed to between the purchaser and the supplier.

## **J-4 NUMBER OF TESTS**

**J-4.1** Test for monostearate, percent by mass, shall be conducted on individual samples and for all the remaining characteristics given in Table 1 shall be carried out on the composite sample.

## **J-5 CRITERIA FOR CONFORMITY**

**J-5.1** The material shall be taken to have conformed to the requirements of monostearate content if the expression  $X - 0.6 R$  is greater than or equal to the minimum value specified in Table 1, where  $X$  is the average of the tests results and  $R$  is the difference between the maximum and the minimum value of the test results.

**J-5.2** The material shall be considered as conforming to the requirements of remaining characteristics if none of the test conducted on composite sample fails.

## **Bureau of Indian Standards**

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